

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 classification categories or taxa. The key is made up of a series of numbered couplets, and within each couplet are two opposing statements which you read, choosing the one that best fits the animal picture.

To use the key, you always start at the first couplet (look for a '1' in the first column). Read the two couplet choices (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 them up in a reference, a dictionary, or your textbook glossary, perhaps.

Look at your animal. Choose the statement (a or b) that best fits your animal. All parts of the statement must be true.

If you select a statement and arrive at a Class with some name after it, you have found the classification (*Class*) to which your organism belongs, and you have finished identifying the animal!

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

Again, you would choose the couplet choice that best describes characteristics of your animal. If your choice is a number, go to that couplet number and continue using the key. Continue choosing from the indicated couplets until you come to the couplet choice that provides you with the classification name of your organism.

Here's an example: Blue Land Crab



Always start at Couplet Number 1:

1	a. Symmetry is irregular (neither bilateral or radial); aquatic; body structure without tissues or organs	Class Demospongiae
	b. Symmetry is radial or bilateral	2

The crab has bilateral symmetry, so choose statement b and go to Couplet 2.

Couplet Number 2:

2	a. Radial symmetry, lacks a well defined head	<u>3</u>
	b. Bilateral symmetry (similar right and left body halves, anterior head end and posterior tail end)	<u>6</u>

Choice b describes a crab with bilateral symmetry, right and left body halves, so go to Category 6. Completely skip Couplets 3, 4 and 5 since these will not apply to the crab.

Couplet Number 6

6	a. Animal has no apparent skeleton, <u>or</u> may have an exoskeleton (hard outer covering), <u>or</u> may have a shell; invertebrate	<u>7</u>
	b. Animal has internal skeleton; vertebrate	<u>16</u>

The crab has an exoskeleton or 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 'crab' and 'skeleton'. You will find sites that describe the crab's exoskeleton.

You will select choice 6a and go to Couplet 7.

Couplet Number 7

7	a. No hard outer covering, no exoskeleton, or no shell; worm-like	<u>8</u>
	b. Hard outer covering, exoskeleton, or shell; <u>not</u> worm-like	<u>11</u>

A crab's shell is hard, and a crab is not worm-like. Go to Couplet 11.

Couplet Number 11

11	a. No jointed appendages	<u>12</u>
	b. Jointed appendages	<u>14</u>

The crab's legs are jointed and you would choose b. Go to Couplet 14.

Couplet Number 14

14	a. Two pairs of antennae, large claws often present	Class Crustacea
	b. One pair of antennae or none, no large claws	<u>15</u>

The crab has antennae and large claws; so you will select a, Class Crustacea. You will write Class Crustacea on the Classification Column for your table.

On your Unit 5 IP, in the column labeled “Dichotomous Key (steps)” you will fill in the list of your choices. In the column “Classification” fill in the class you have found. Your results will look like this:

	Organism	Phyla	Dichotomous Key (steps)	Classification
1	 Crab	Arthropoda	1b, 2b, 6a, 7b, 11b, 14a	Class Crustacea

By writing in your couplet choices, you demonstrate that you used the key, and you may earn partial credit, even if you ended up at the wrong answer. Use this method to identify the Classes for each of the 9 nine animals on your table. Have fun!