

Salamander Dichotomous Key

Suppose you find a large colorful salamander while walking near a pond. Chances are the salamander has already been named and classified, but how can you learn its identity? As an aid to help others identify unknown organisms, biologists have developed classification keys. These classification keys are often called **dichotomous keys** (the word dichotomous comes from the word **dichotomy** meaning “two opposite categories”). A dichotomous key presents the user with two opposite statements about some trait of an organism. By choosing one of the two statements that best describes the unknown organism, the user is lead to further pairs of statements. By going from one set of statements to another, the name of the organism or its classification group is determined.

Pre-lab questions:

1. How many choices does a dichotomous key provide at each step?
2. What are some of the differences you see among the salamanders illustrated?

Procedure:

Use the dichotomous key provided on the back of this sheet to identify **at least 3 species** of salamanders (in addition to the two we will work through as a class). Begin by reading statements 1a and 1b. One of the statements describes the salamander; the other statement does not. Follow the directions for the statement that applies to that salamander and continue following the correct statements until you have identified it. Record the scientific and common names of the salamander in the data table below.

3. Repeat step 2 for each of the other salamanders in Figure 1.

Data table:

	Scientific name	Common name
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____

Post-lab questions: Answer the following using complete thoughts.

3. As you used the classification key to identify the salamanders, did the characteristics you used start out general and become more specific, or did you start with specific characteristics that became more general?
4. What two names make up the scientific name of each salamander?

Salamander Key

1	A	Hind limbs absent	<i>Siren intermedia</i> , siren
	B	Hind limbs present	Go to 2
2	A	External gills present in adults	<i>Necturus maculosus</i> mud puppy
	B	External gills absent in adults	Go to 3
3	A	Large size (over 7cm long in Figure 1)	Go to 4
	B	Small size (under 7cm long in Figure 1)	Go to 5
4	A	Body background black, large white spots irregular in size & shape, completely covering body & tail	<i>Ambystoma tigrinum</i> tiger salamander
	B	Body background black, small round white spots in a row along each side from eye to tip of tail	<i>Ambystoma maculatum</i> , spotted salamander
5	A	Body background black with white spots	Go to 6
	B	Body background light color with dark spots and/or lines on body	Go to 7
6	A	Small white spots on a black background in a row along each side from head to tip of tail	<i>Ambystoma jeffersonianum</i> Jefferson salamander
	B	Small white spots scattered throughout a black background from head to tip of tail	<i>Plethodon glutinosus</i> slimy salamander
7	A	Large irregular black spots on a light background extending from head to tip of tail	<i>Ambystoma opacum</i> marbled salamander
	B	No large irregular black spots on a light background	Go to 8
8	A	Round spots scattered along back & sides of body, tail flattened like a tadpole	<i>Triturus viridescens</i> newt
	B	Without round spots and tail not flattened like a tadpole	Go to 9
9	A	Two dark lines bordering a broad light middorsal stripe with a narrow median dark line extending from the head onto the tail	<i>Eurycea bislineata</i> two-lined salamander
	B	Without two dark lines running the length of the body	Go to 10
10	A	A light stripe running the length of the body & bordered by dark pigment extending downward on the sides	<i>Plethodon cinereus</i> red-backed salamander
	B	A light stripe extending the length of the body, a marked constriction at the base of the tail	<i>Hemidactylum scutatum</i> four-toed salamander

Procedure

Part A: Using a Dichotomous Key

1. Examine the drawings of the salamanders in Figure 1. Choose one salamander to identify by using the key.

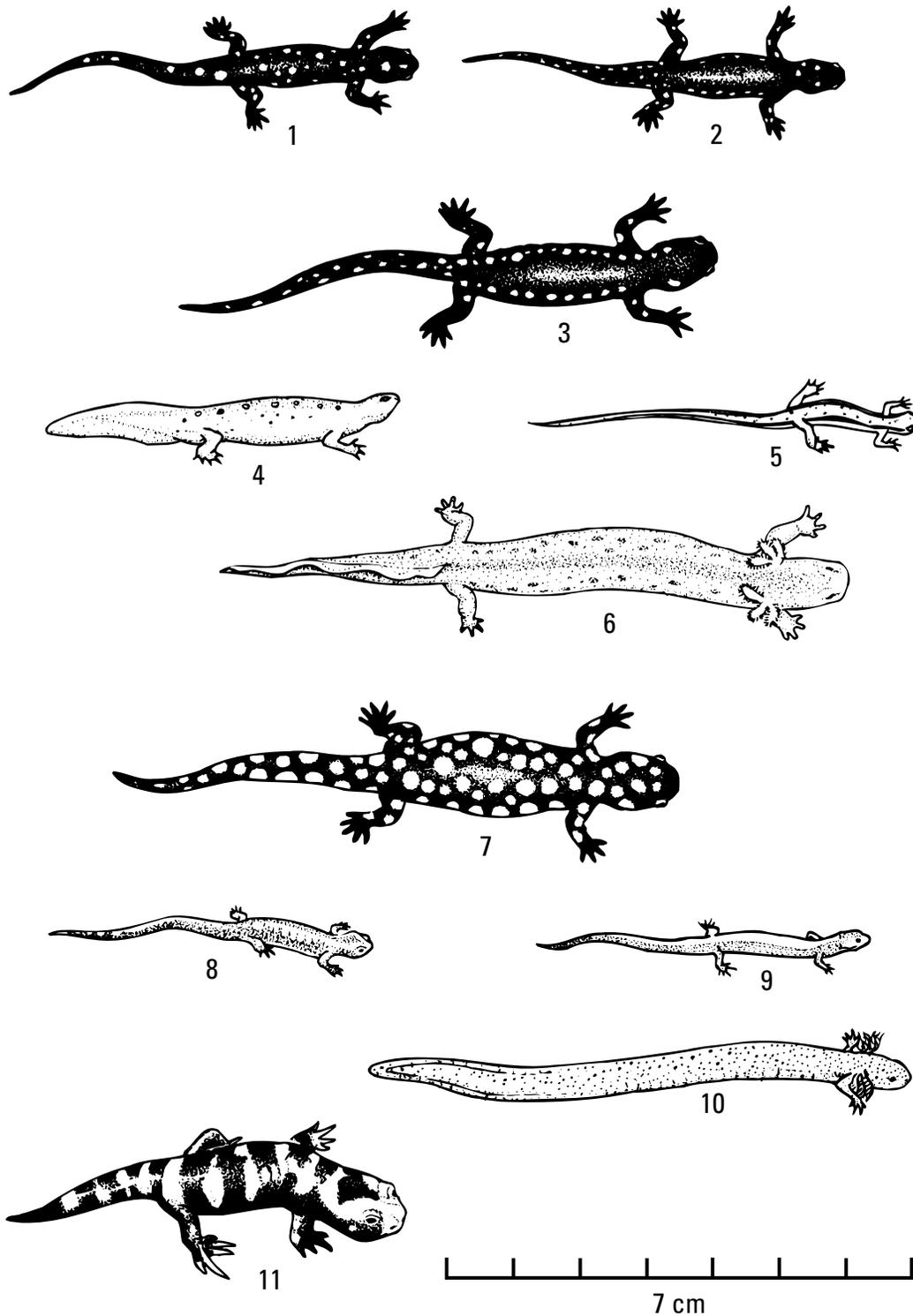


Figure 1