

What Is a Dichotomous Key?

- The word *dichotomous* comes from Greek and English roots:

dicho is Greek for _____, and *tom* means _____

The *-ous* ending is from the English, meaning “full of.”

- A dichotomous key is _____ that scientists use to _____.
- A dichotomous key focuses on _____.
- Usually, the dichotomous key will list the _____.
- When using a dichotomous key, you will only look at one characteristic at a time and divide your specimens into two groups until each living thing has been placed into a category all of its own.

Here is an example of a very simple dichotomous key for pets.

- Focus on one animal at a time (see the pictures below).
- At each line, you look at the animal and determine whether it possesses the characteristic listed. Then, follow the directions in the right side boxes as to where to go next.

You will always have two choices, a or b.

When there are no further directions, and a type of animal is listed in the right box, then you have completed the key for that animal.

- Go on to the next pictured animal, and follow the key until all animals have been deciphered.



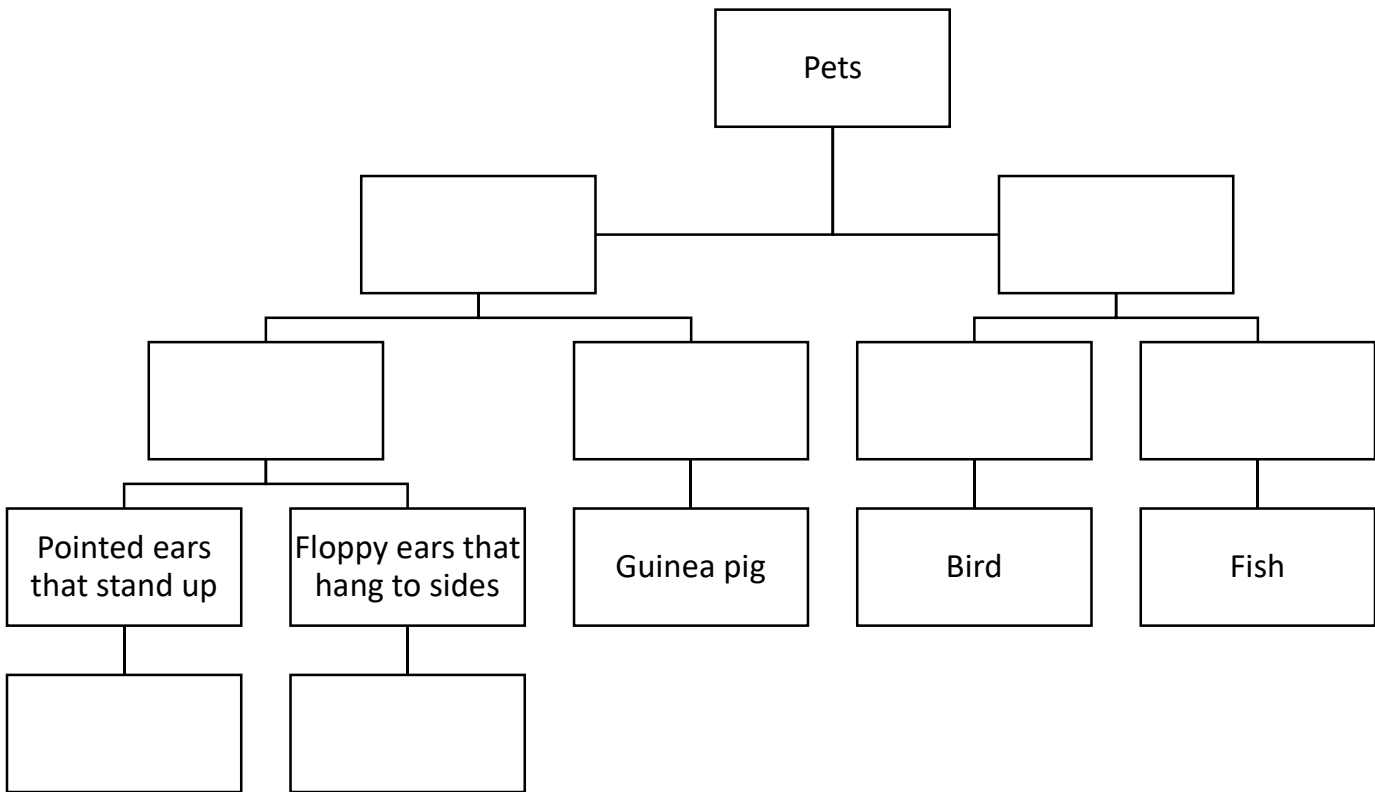
1.	a. Animal has fur b. Animal does not have fur	Go to #2 Go to #4
2.	a. Animal is carnivorous (eats meat) b. Animal is herbivorous (eats plants)	Go to #3 Guinea pig
3.	a. Animal has pointed ears that stand up b. Animal has soft, floppy ears that hang to the sides	Cat Dog
4.	a. Animal has feathers b. Animal does not have feathers	Bird Fish

Visual Dichotomous Key

A good first step to creating your own dichotomous key is to think of similar characteristics that most of the things in your selected group have in common. If you are looking at animals, you might focus on the type of animal (for example, mammals, reptiles, fish, etc.) first.

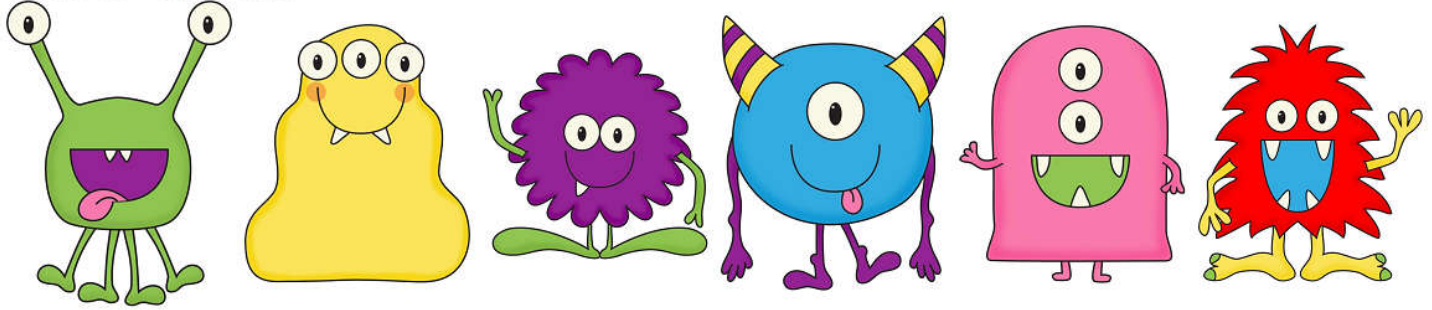
Once you select a way to broadly categorize the first line, start getting more detailed with each successive trait in the following lines. If you started with types of animals and have narrowed one type to reptiles, then you may next want to focus on body shape, size, color, or another physical characteristic. Each new line becomes more descriptive until all the animals are in their own, separate categories.

It might help to plan out your dichotomous key first by creating a concept map to show how each level will be more specific than the one before it. Below is an example concept web used to construct the pet dichotomous key above.



Identifying Aliens with a Dichotomous Key

Look carefully at the aliens pictured below. Use the dichotomous key to find the scientific name for each one.



- 1
 - a. Mouth open go to 2
 - b. Mouth not open go to 4

- 2
 - a. Arms go to 3
 - b. No Arms *Alienus quadlegicus*

- 3
 - a. Hairy *Alienus hairicus*
 - b. Not hairy *Alienus tritoothicus*

- 4
 - a. No horns go to 5
 - b. Horns *Alienus stripicus*

- 5
 - a. No legs *Alienus blobicus*
 - b. Legs *Alienus fuzzicus*

Write your answers below.













Each of these aliens belongs to the same genus. What is their genus? _____

Look at the species name for each alien. How do you think these names were chosen?

Salamanders Dichotomous Key WS

Directions Use the dichotomous key provided to identify the 11 salamanders. 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 numbers you followed on the key, and then the scientific and common names of the salamander in the table below.

Data Table

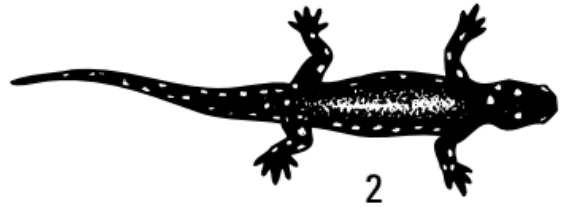
Salamander #	Numbers Followed on Dichotomous Key	<i>Scientific Name</i> (the one in italics)	Common Name
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

Questions:

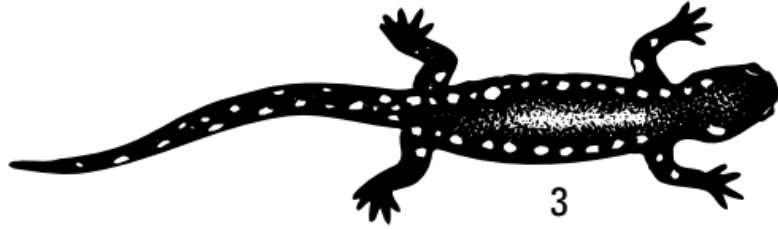
1. How many choices does a dichotomous key provide at each step?
2. As you used the classification key to identify the salamanders, did the characteristics you used start out general and become more specific, or did you start with specific characteristics that became more general?
3. What two taxa (kingdom, phylum, etc...) names make up the scientific name of each salamander?



1



2



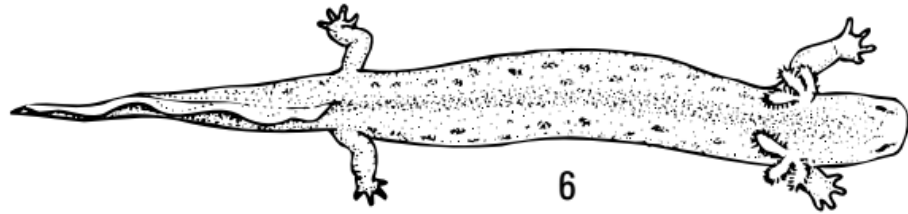
3



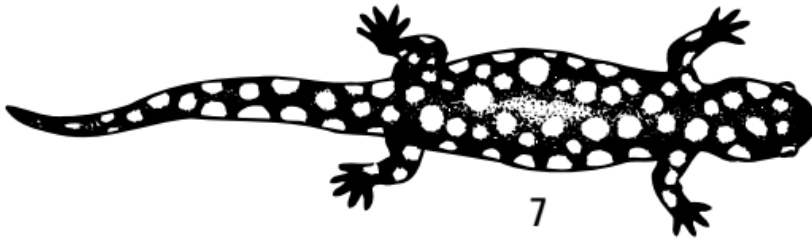
4



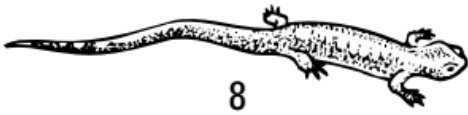
5



6



7



8



9



10



11



7 cm

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