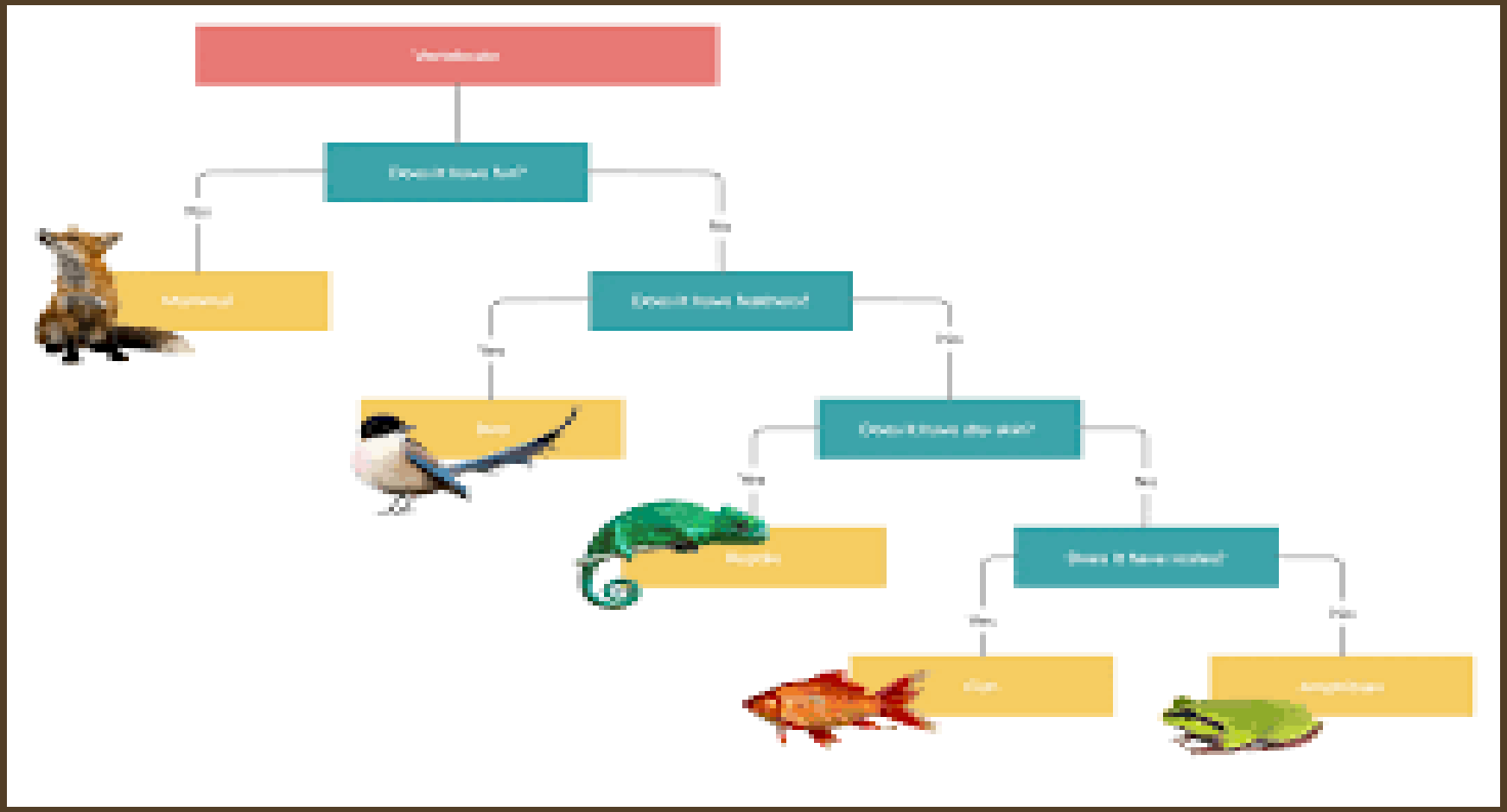
WHAT IS A DICHOTOMOUS KEY

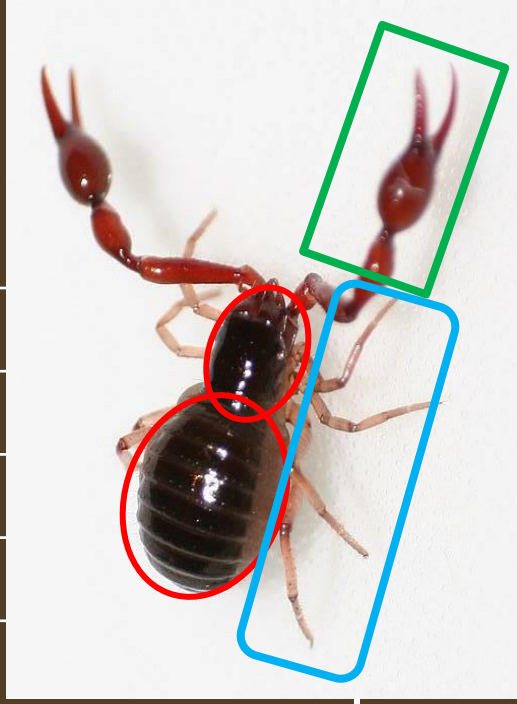


A system for identifying organisms that offers two, and only two alternatives at each choice.

What is this crazy creature ????

Let's use a dichotomous key to identify this organism???

1a. Has 8 legs	Go to Step 2.
1b. Has more than 8 legs	Go to Step 3.
2a. Has one oval-shaped body region	Go to Step 4.
2b. Has two body regions	Go to Step 5.
3a. Has one pair of legs on each body segment	**Centipede**
3b. Has two pairs of legs on each body segment	**Millipede**
4a. Is less than 1 millimeter long	**Mite**
4b. Is more than 1 millimeter long	**Tick**
5a. Has clawlike pincers	Go to Step 6.
5b. Has no clawlike pincers	**Spider**
6a. Has a long tail with a stinger	**Scorpion**
6b. Has no tail or stinger	**Pseudoscorpion**



PRACTICE

Dichotomous Key to 10 Common Mammals in the Eastern United States

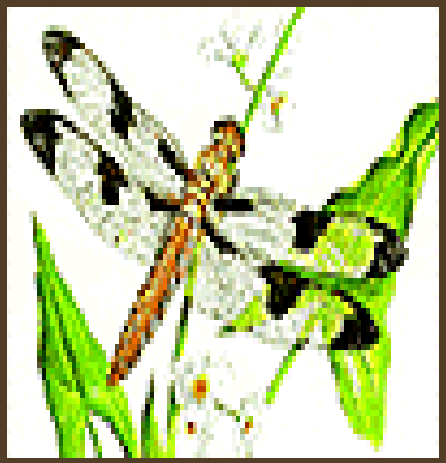
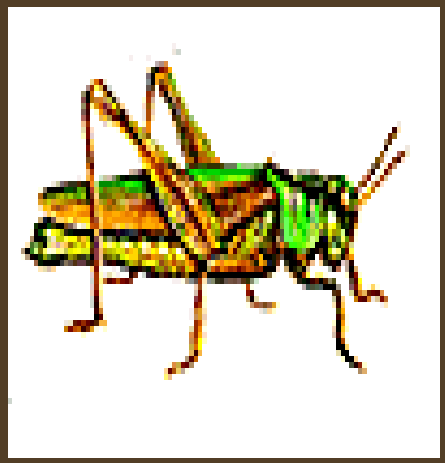
1.	**a.** This mammal flies. Its hand is formed into a wing.	**Little brown bat**
	b. This mammal does not fly.	**Go to step 2**
2.	**a.** This mammal has a naked (no fur) tail.	**Go to step 3**
	b. This mammal doesn't have a naked tail.	**Go to step 4**
3.	**a.** This mammal has a short, naked tail.	**Eastern mole**
	b. This mammal has a long, naked tail.	**Go to step 5**
4.	**a.** This mammal has a black mask across its face.	**Raccoon**
	b. This mammal does not have a black mask across its face.	**Go to step 6**
5.	**a.** This mammal has a tail that is flattened and shaped like a paddle.	**Beaver**
	b. This mammal has a tail that is not flattened or shaped like a paddle.	**Opossum**
6.	**a.** This mammal is brown with a white underbelly.	**Go to step 7**
	b. This mammal is not brown with a white underbelly.	**Go to step 8**
7.	**a.** This mammal has a long, furry tail that is black on the tip.	**Longtail weasel**
	b. This mammal has a long tail without much fur.	**White-footed mouse**
8.	**a.** This mammal is black with a narrow white stripe on its forehead and broad white stripes on its back.	**Striped skunk**
	b. This mammal is not black with white stripes.	**Go to step 9**
9.	**a.** This mammal has long ears and a short, cottony tail.	**Eastern cottontail**
	b. This mammal has short ears and a medium-length tail.	**Woodchuck**

Basic Rules for Constructing Dichotomous Keys

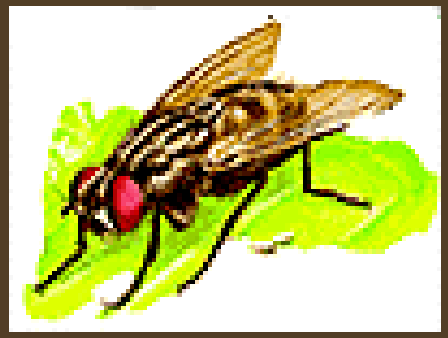
- All parts of the key should be **di**chotomous. Never use trichotomies.
- Always give contrasting, alternative characteristics in each couplet. Use clear-cut opposites.
- Taxonomic names should never be used in the characteristic description.
- Use characteristics that are convenient and obvious features of the organism.
- Each step involves making choices between 2 characteristics. The characteristics are grouped 1a and 1b, 2a and 2b and so forth.

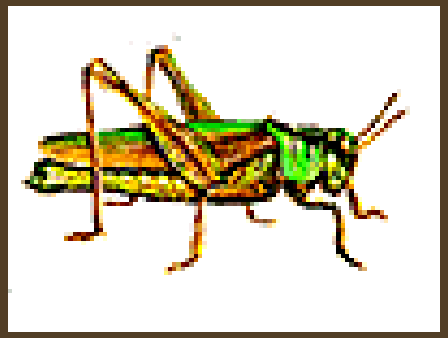
Suppose you have four insects a ladybug, a housefly, a dragonfly and a grasshopper.



After studying the insects, what characteristics could you use to start separating the four insects??



- Wing covering
- Body shape
- Where the wings point towards

To begin the key, you could start separating the four insects based on wing covering - "wings covered by exoskeleton" vs. "wings not covered by exoskeleton."

The first step in the key will be organized the following way:

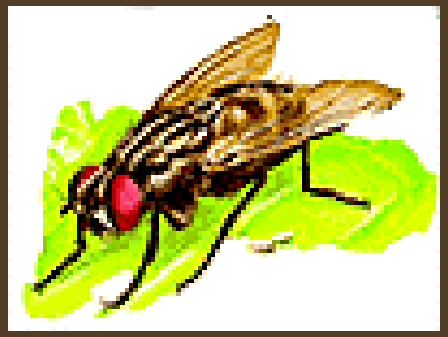
CHARACTERISTIC

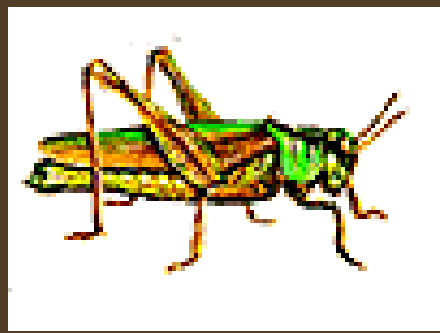
- 1 a. wings covered by an exoskeleton
- 1 b. wings not covered by an exoskeleton

Next, the statements need to lead the observer to the next step to narrow the identification further:

CHARACTERISTIC **GO TO/ IDENTIFY**

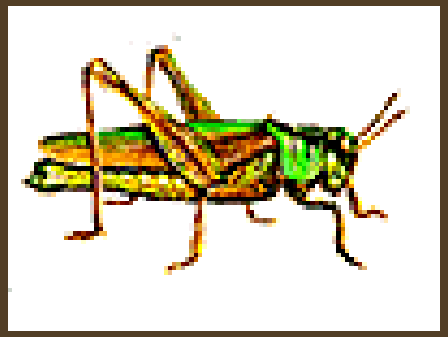
- 1 a. wings covered by an exoskeleton ……go to step 2
- 1 b. wings not covered by an exoskeleton ….go to step 3



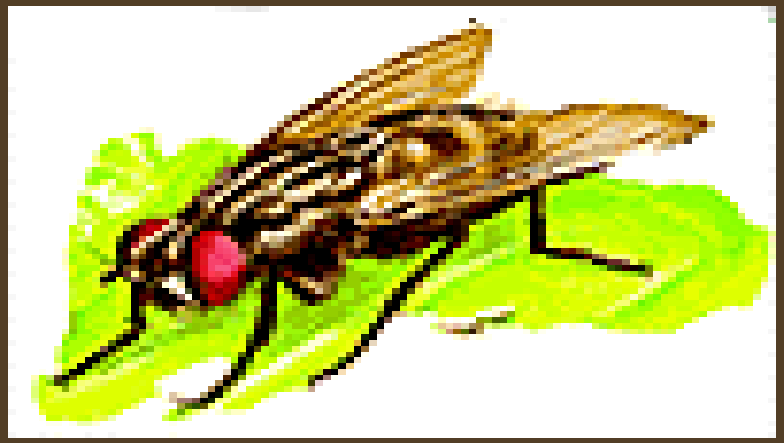
Step 2 needs to consist of a ***pair of statements*** that will allow for the identification of the ladybug and the grasshopper:

- 2 a. body has a round shape ……ladybug
- 2 b. body has an elongated shape …..grasshopper



Step 3 needs to consist of a ***pair of statements*** that will allow for the identification of the housefly and dragonfly:

- 3 a. wings point out from the side of the body …….dragonfly
- 3 b. wings point to the posterior of the body …….housefly



When using a key, keep the following in mind:

- Always read both choices, even if the first seems to be the logical one at first.
- Be sure you understand the meaning of the terms involved. Do Not Guess.
- Since living things are always somewhat variable, do not base your conclusion on a single observation. Study several specimens to be sure your specimen is typical.
- If the choice is not clear, for whatever reason, try both divisions. If you end up with two possible answers, read descriptions of the two choices to help you decide.
- Having arrived at an answer in a key, do not accept this as absolutely reliable. Check a description of the organism to see if it agrees with the unknown specimen. If not, an error has been
- Made somewhere, either in the key or in its use. The ultimate check of identifications is a comparison of the unknown with an authentically named "Type Specimen".

Let’s give this a try….

- How about classifying some ALIENS that are visiting our Planet Earch?