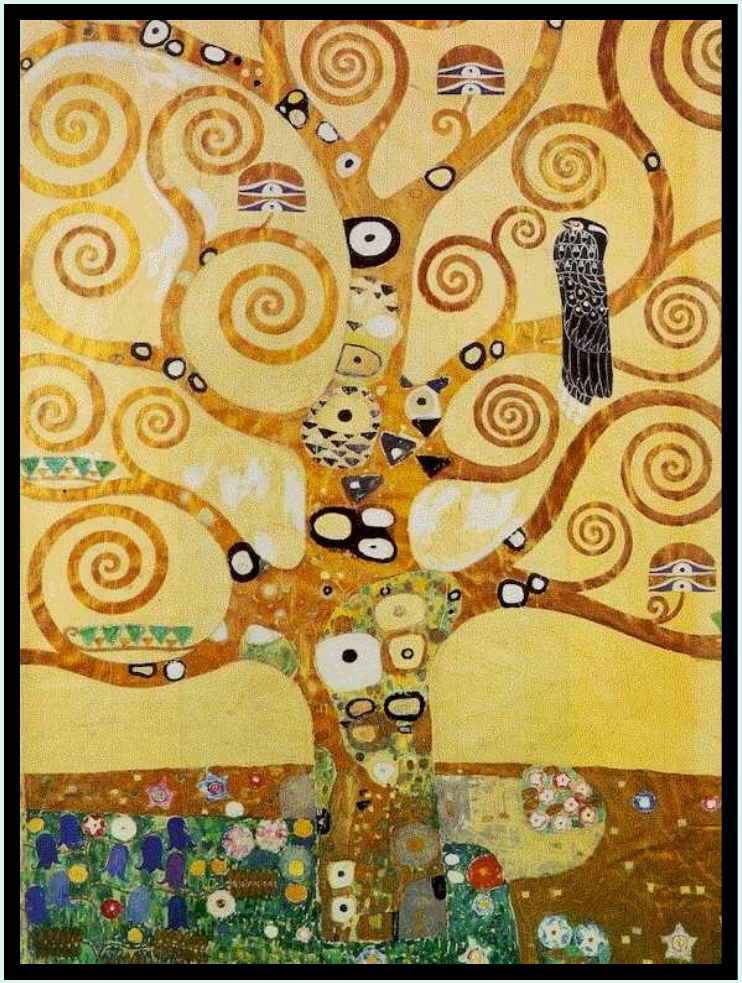
Dichotomous Keys



What are Dichotomous Keys?

- a tool for determining the identity of a living organism (like the name of a butterfly, a plant, or a lichen) by going through a series of questions or choices that leads the user to the correct name of the item.

- A dichotomous key is a listing of characteristics, such as structure and behavior, organized in such a way that an organism can be identified or classified.

- Think of a dichotomous key as a type of scavenger hunt.

- Dichotomous means "divided in two parts".

Using a dichotomous key

At each step of the process of using the key, the user is given two choices; each alternative leads to another question until the item is identified.

1a. If the leaves are flat….go to question 4.

1b. If the leaves are needle-like….go to question 2.

2a. Are the needles in a bunch? Go to question 5

2b. Are they spread along the branch?“…pine tree

Eventually, when enough questions have been answered, the identity of the tree is revealed.

Opposite Paired Statements

1. a. tail fins are horizontal—whale…….go to 2
   b. tail fins are vertical—fish…….go to 3
2. a. has teeth or tusk—toothed whale……..go to 4
   b. has no teeth……...BALEEN WHALE
3. a. has gill slits behind mouth—shark……..go to 5
   b. has no gill slits……..NONSHARK FISH
4. a. black with white underside…….KILLER WHALE
   b. tusk, gray with dark spots……....NARWHAL
5. a. head is hammer-shaped……..HAMMERHEAD SHARK
   b. tail is half the body length…….THRESHER SHARK

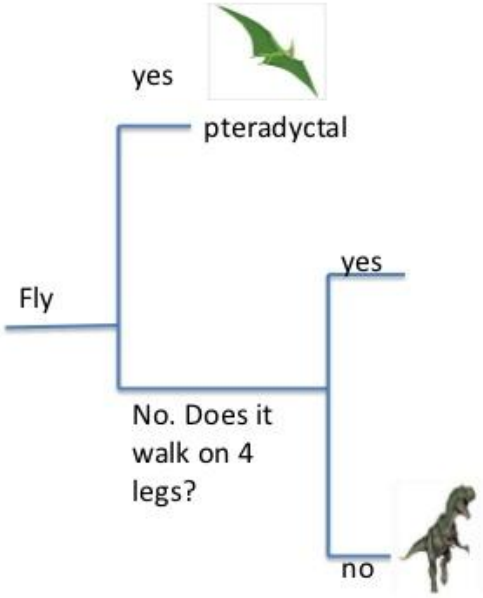
Yes or No Questions

Example Dichotomous Key:

- Does it fly?
  - If yes Pteradyctal
  - If no, move to step 2
- Does it walk on 4 legs?
  - If yes, move to step 3
  - If no, T. Rex

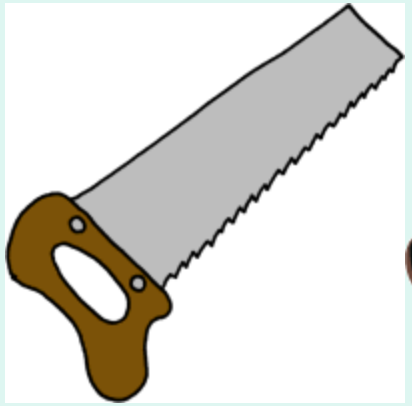
- Is it a carnivore?
  - If yes, Triceratops

  - If no, Brontosarus



MAKING A DICHOTOMOUS CLASSIFICATION KEY

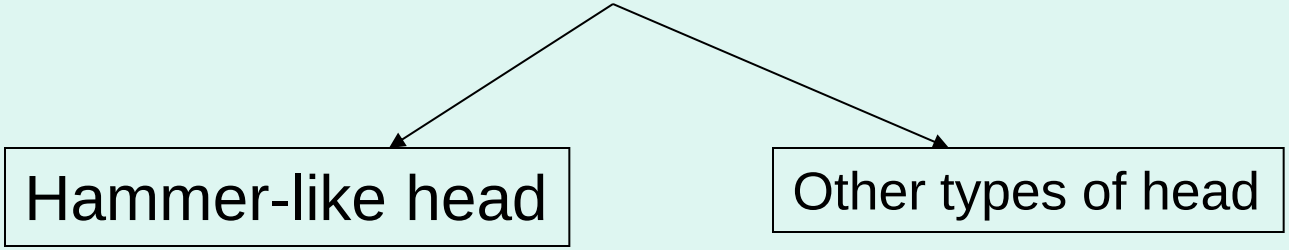
http://www.qacps.k12.md.us/ces/Staff2.htm




17 mm
45210
17 mm

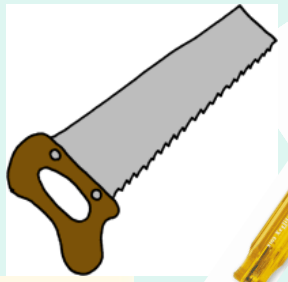
POSSIBLE "DERIVED CHARACTERS"

- Hammer-like head
- All made of one material
- Is it hinged
- Has a sharp edge
- Has holes


Hammer-like head
Other types of head

Hammer-like head

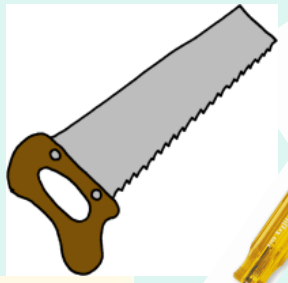
Other types of head

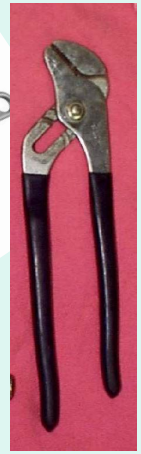


Hammer-like head



Other types of head



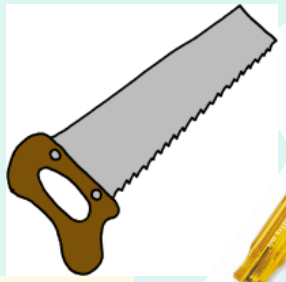

ALL Made of Wood

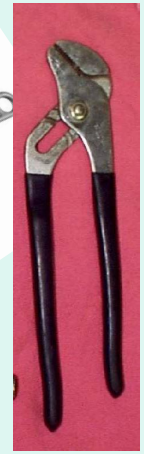
Made of Wood and other materials


Hammer-like head



Other types of head





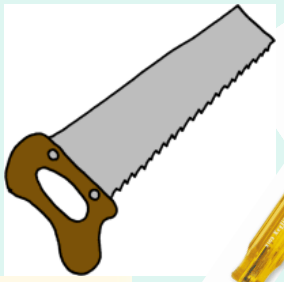

Sides of head are different

Sides of head are same

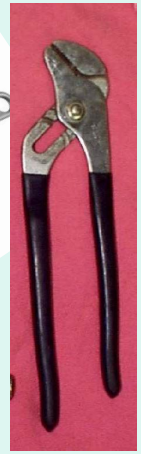

Hammer-like head



Other types of head





Sides of head are different

Sides of head are same


All wooden

NOT all wooden

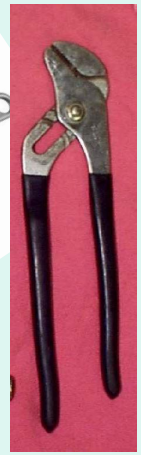
Hammer-like head



Other types of head





Sides of head are different

Sides of head are same


All wooden

Wooden and rubber

?

?

Engage Activity –Create your own dichotomous key

Create a dichotomous key to identify 2 people in this classroom, using questions based on gender, hair length/color, glasses (or not), clothing color, etc.

1a. Is this person male? Go to question 2.

1b. Is this person female? Go to question 3.

Dichotomous key for insects

A

B

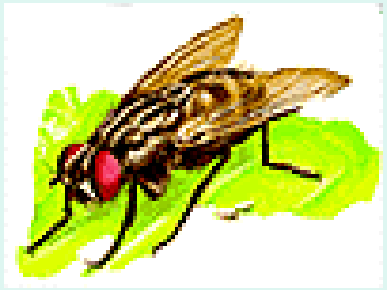
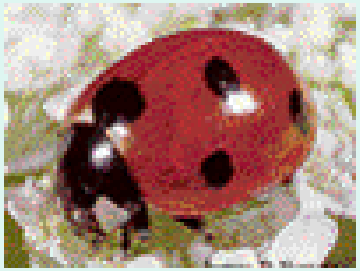
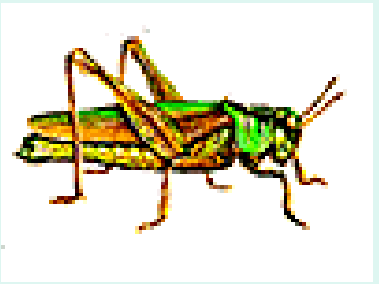
C

D

1a. Wings are covered by an exoskeleton — go to step 2.
1b. Wings are not covered by an exoskeleton — go to step 3.

2a. Body has a round shape — *ladybug*.
2b. Body has an elongated shape — *firefly*.

3a. Wings point outward from the body — *dragonfly*.
3b. Wings point toward the rear of the body — *bee*.

1. a. wings covered by an exoskeleton – go to step 2

   b. wings freely observed – Go to step 3

2. a. body has a round shape ……..ladybug, a red beetle with black spots

   b. body has an elongated shape ……..grasshopper, a green insect that hops

3. a. wings point out from the side of the body ……..dragonfly, an insect that is 10- 15 cm long and lives in marshes

   b. wings point to the posterior of the body ……..housefly, a flying insect with red eyes and an annoying buzz