Dichotomous key

How dichotomous key is used?

What is taxonomy?

Taxonomy is the branch of biology which deals with classifying and naming of organisms

Biologists who study this are called taxonomists

How did it start?

People wanted to organize their world so they began grouping, or classifying everything they saw.

Things that fly
Things that swim
Things that crawl
Things that walk on four legs
Things that chew their food
Things that swallow food whole
Things that are toxic

Why classify?

To organize all the discovered organisms

To give organism a standard name so scientists from different countries can talk about the same animal without confusion

Seven level system:

Every kingdom has seven levels .

The Seven Level System

Kingdom (KING)
Phylum (PHILIP)
Class (CAME)
Order (OVER)
Family (FOR)
Genus (GRAPE)
Species (SODA)

Kingdom: it is the first and largest category in classification.

Species: it is the last and smallest category.

How does it work?

There are 6 broad kingdoms

Every living thing that we know of fits into one of the six kingdoms

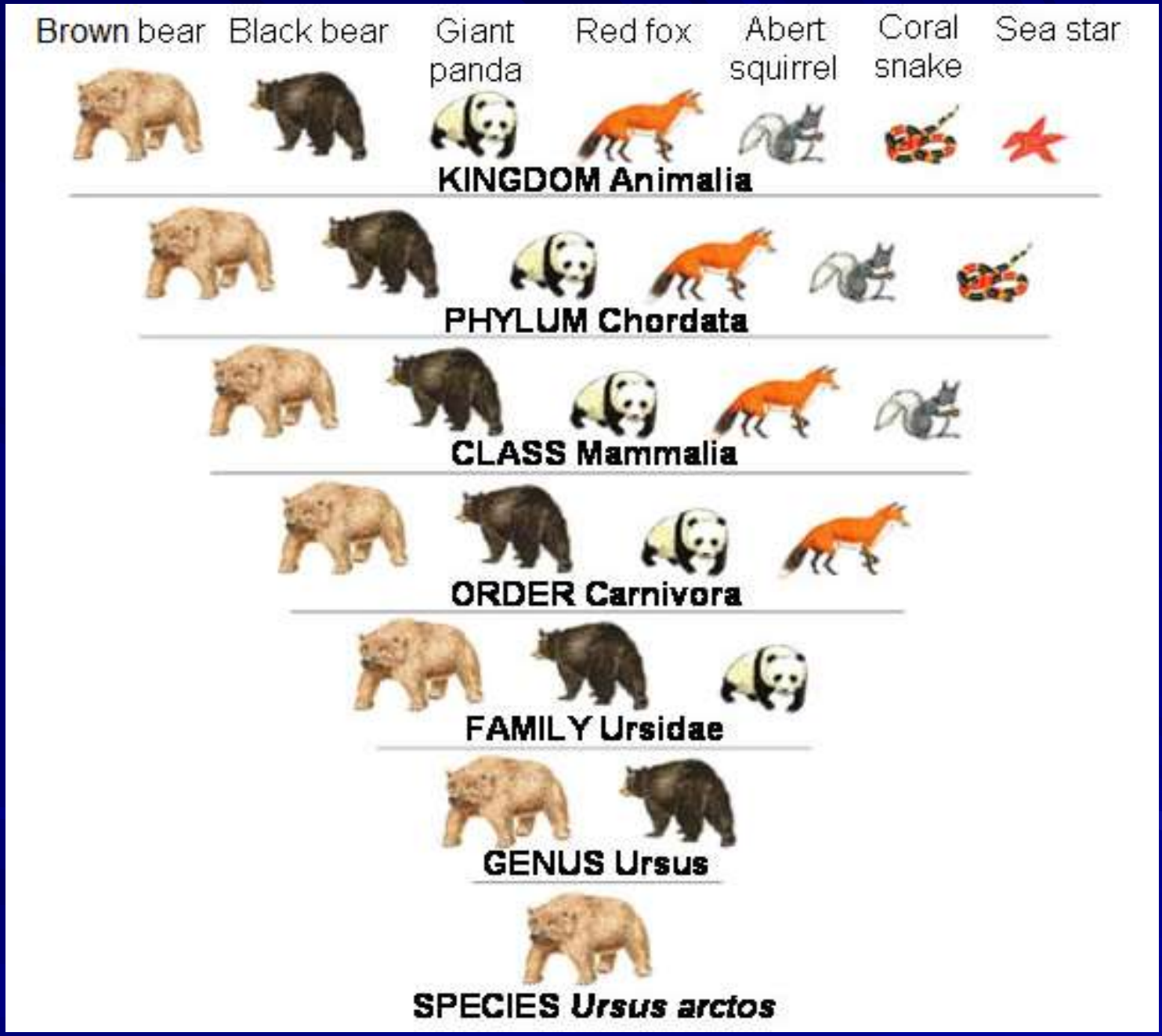
Each level gets more specific as fewer organisms fit into any one group

Videos

The Best Classification Rap with Lyrics
https://www.youtube.com/watch?v=gj15UF08lUI

Science Rap – Zendaya and Bella
https://www.youtube.com/watch?v=J-FTy6L_yYo

Classification of Organisms
https://www.youtube.com/watch?v=6WPBA4a6NjU


Brown bear
Black bear
Giant panda
Red fox
Abert squirrel
Coral snake
Sea star
KINGDOM Animalia
PHYLUM Chordata
CLASS Mammalia
ORDER Carnivora
FAMILY Ursidae
GENUS Ursus
SPECIES Ursus arctos

What is Binomial Nomenclature?

Bi means two

Nomen means name

A binomial nomenclature is a two name classification system (genus and species) to identify an organism

What is Genus?

A genus consists of a group of closely related organisms

Other animals in the *Canis* genus include dogs and coyotes

The genus name is always Capitalized

What is Species?

A species consists of animals that can mate and produce fertile offspring

Only grey wolves are known as *lupus*.

The species name is always lowercase

What is a scientific name?

- Combination of the genus and species name of an organism
- Scientific names of organisms are always italicized or underlined: (Genus is capitalized; species name is lower-case)

mnemonic device to help you remember the levels of classification from largest to smallest.

Examples:

King Phillip came over for grape soda.

King Phillip came over from Germany Saturday.

King Phillip can order fresh green salad

Naming a Wolf

Canis lupus is the scientific name for a gray wolf.

Canis is the genus name, *lupus* is the species name

Genus + *species* = scientific name

Capital lower case

A scientific name is the same no matter how many common names an organism might have.

Quick Review

- What are the seven taxa or levels?
- Who designed the system?
- What taxa are organisms named with?

How Do We Identify Organism?

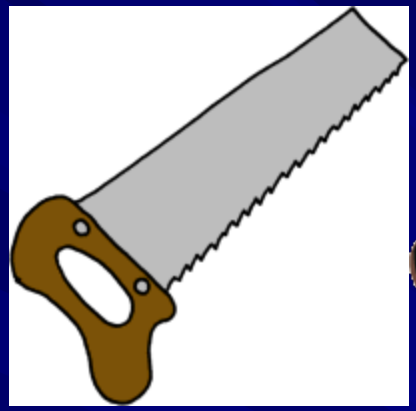
We use a tool called a Dichotomous Key.

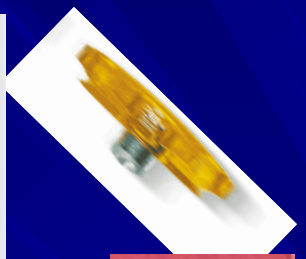
A dichotomous key is a tool that identifies organisms .It uses a series of two part (di) questions.

Example of a Dichotomous Key

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 hammershaped……..HAMMERHEAD SHARK
   b. tail is half the body length……THRESHER SHARK

MAKING A DICHOTOMOUS CLASSIFICATION KEY





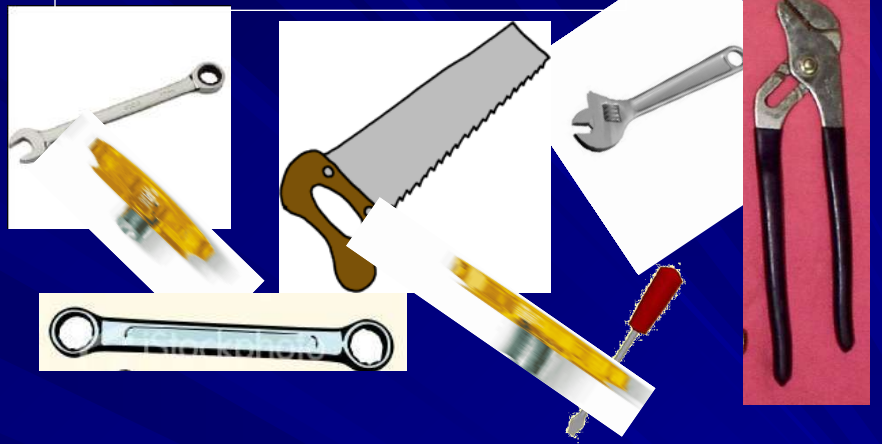
Possible Characteristics

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

Hammer-like head
NO Hammer-like head

Hammer-like head

NO Hammer-like head



1. a Hammer - like head …… ?
   b No hammer – like Head …… ?

1. a Hammer - like head …… go to #2
   b No hammer – like Head …… ?

Hammer-like head

Made of all Wood

NOT Made of all Wood

1. a Hammer - like head …… Go to 2
   b No hammer – like Head …… ?

2. a Made of all wood ……?
   b Not made of all wood ……?

NO Hammer-like head

1. a Hammer - like head …… Go to 2
   b No hammer – like Head …… ?

2. a Made of all wood …… gavel
   b Not made of all wood …… Go to 3

Hammer-like head

NO Hammer-like head

Made of all Wood

Not made of all Wood

Ends of head are different

Ends of head NOT different

1. a Hammer - like head …… Go to 2
   b No hammer – like Head …… ?

2. a Made of all wood …… gavel
   b Not made of all wood …… Go to 3

3. a End of head are different ……?
   b Ends of head are not different ……?

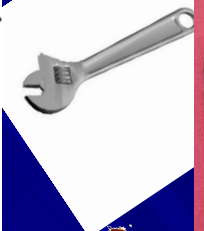
1. a Hammer - like head …… Go to 2
   b No hammer – like Head …… ?

2. a Made of all wood …… gavel
   b Not made of all wood …… Go to 3

3. a End of head are different ……hammer
   b Ends of head are not different ……mallet

Hammer-like head

NO Hammer-like head



Sides of head are different

Sides of head are NOT different

All wooden

NOT all wooden

1. a Hammer - like head …… Go to 2
   b No hammer – like Head ……?
2. a Made of all wood …… gavel
   b Not made of all wood …… Go to 3
3. a End of head are different ……hammer
   b Ends of head are not different ……mallett
4. a ?
   b ?

1. a Hammer - like head …… Go to 2
   b No hammer – like Head …… Go to 4
2. a Made of all wood …… gavel
   b Not made of all wood …… Go to 3
3. a End of head are different ……hammer
   b Ends of head are not different ……mallet
4. a ?
   b ?

Hammer-like head

NO Hammer-like head

Ends of head are different

Ends of head are NOT different

All wooden

NOT all wooden

?

?

Finish your dichotomous key